MONOCYTE CHEMOATTRACTANT ACTIVITY OF GALECTIN-3

Statement as to Federally Sponsored Research

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Cross Reference to Related Applications

This application is based on Provisional Application Ser. No. 60/188,795, which was filed on Mar. 13, 2000, and priority is claimed thereto.

Field of the Invention

The present invention relates to methods for modulating migration of cells, especially monocytes, neutrophils and macrophages, using galectin-3, galectin-3 binding polypeptides, galectin-3 receptor binding polypeptides or galectin-3 mimetics. The invention also relates to screening methods for identifying agents that modulate galectin-3-mediated cell migration.

Background of the Invention

Lectins are proteins that bind to specific carbohydrate structures and can thus recognize particular glycoconjugates. Galectins are a family of over 10 structurally related lectins that bind beta-galactosides.

Galectin-3 is a 26 kDa beta-galactoside-binding protein belonging to the galectin family. This protein is composed of a carboxyl-terminal carbohydrate-recognition domain (CRD) and amino-terminal tandem repeats. Galectin-3 is found in epithelia of many organs, as well as in various inflammatory cells, including macrophages, dendritic cells and Kupffer cells. The expression of galectin-3 is upregulated during inflammation, cell proliferation, cell differentiation, and through transactivation by viral proteins. Its expression is also affected by neoplastic transformation -- upregulated in certain types of lymphomas and thyroid carcinoma; downregulated in other types of malignancies, such as colon, breast, ovarian and uterine carcinomas. Recently, it has been reported that the expression of this lectin has a strong correlation with the grade and malignant potential of primary brain tumors. Increased galectin-3 expression has also been noted in human atherosclerotic lesions. These findings suggest that galectin-3 may mediate both physiological and pathological responses.